

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. Canceled
- 2 (currently amended). The computerized system of claim 1 ~~122~~ wherein said at least one portable computer is a hand-held computer.
3. (Currently amended) The computerized system of claim 122 ~~1~~ wherein said site specific computer implemented model provides a three-dimensional representation of said physical environment ~~is constructed from a collection of two-dimensional representations.~~
4. (Currently amended) The computerized system of claim 122 ~~1~~ wherein said physical environment is a building and said site specific computer implemented model includes a two or three dimensional ~~three dimensional representation of~~ includes at least one floor plan of said building.
5. (Currently amended) The computerized system of claim 4 wherein said site specific computer implemented model includes two or three dimensional representations of ~~three dimensional representation includes~~ a plurality of floor plans for a plurality of floors in said building, ~~and wherein said portable computer includes a means for selecting specific floor plans of said plurality for displaying on said display.~~
6. (Currently amended) The computerized system of claim 122 ~~1~~ wherein said physical environment is a campus of buildings and said ~~three dimensional representation provided by said site specific computer generated model~~ includes at least one floor plan for each of a plurality of buildings in said campus, and wherein said at least one portable computer can be used to ~~includes a means to~~ select a building within said campus of buildings ~~and to display said at least one floor plan for said building selected.~~

7. (Currently amended) The computerized system of claim 6 wherein said ~~three dimensional~~ representation provided by said site specific computer implemented model includes a plurality of floor plans for a plurality of floors for ~~said a building of said campus of buildings selected.~~

8. (Currently amended) The computerized system of claim 122 † wherein said components are selected from the group consisting of base stations, base station controllers, amplifiers, attenuators, antennas, coaxial cabling, fiber optic cabling, connectors, splitters, repeaters, transducers, converters, couplers, leaky feeder cables, hubs, switches, routers, firewalls, power distribution lines, copper wiring, twisted pair cabling, and wireless access points.

9. (Currently amended) The computerized system of claim 122 † wherein said communications network includes wireless communication devices.

10. (Currently amended) The computerized system of claim 122 † wherein said physical environment is an outdoor environment ~~area having three dimensional topology and said three dimensional representation includes a representation of said three dimensional topology.~~

11. (Currently amended) The computerized system of claim ~~†~~ 122 further comprising wherein a position-tracking device is used to determine a position of said at least one portable computer or said measurement device within said physical environment.

12 (Currently amended). The computerized system of claim ~~†~~ 122 wherein said communication network components are maintained in a bill of materials.

13. ~~A~~ The computerized system of claim 122 further comprising designing,
~~deploying, modifying, or maintaining a communications network, comprising:~~
~~a computer generated model of a physical environment in which said~~
~~communications network is or will be deployed, said computer generated model~~
~~providing a representation of locations of components within said physical~~

~~environment, and wherein said computer generated model provides for performance prediction of said communications network based on factors selected from the group consisting of choice of components to be used within said environment, choice of locations for said components with said environment, and orientation of said components at said locations;~~

~~—— a server computer or computers for running a computer program which generates said computer generated model;~~

~~—— at least one portable computer which acts as a client to said server;~~

~~—— means for downloading and storing at least a portion of said computer generated model from said server to said portable computer for displaying said representation on said portable computer; and~~

~~a display associated with said at least one portable computer or said server computer or computers for displaying said representation and said performance prediction results.~~

14. (Currently amended) The computerized system of claim 122 ~~13~~ further comprising:

~~—— a means for inputting wherein said server computer or computers or said at least one portable computer can be used to input changes to said factors used in said site specific computer implemented model for said at least a portion of said computer generated model on said portable computer which is downloaded from said server; and~~

~~—— a means for uploading said changes to said server.~~

15. (Currently amended) The computerized system of claim 14 ~~wherein said changes that are input with said server computer or computers or said at least one portable computer modify a representation of a configuration of said communications network~~ ~~13~~ further comprising:

~~—— a means for inputting changes to said factors for said at least a portion of said computer generated model on said portable computer which is downloaded from said server; and~~

~~—— a means for outputting predicted performance parameters of said communications network based on said inputted changes on said display of said~~

~~portable computer.~~

16-27. (Canceled)

28. (Currently amended) A computerized system for designing, deploying, optimizing, modifying, or maintaining a communications network, comprising:

a computerized ~~computer generated~~ model ~~of representing~~ a physical environment in which said communications network is or will be deployed, said computerized ~~computer generated~~ model providing ~~a~~ at least one site specific representation of locations of one or more components within said physical environment;

a server computer or computers for running a computer program which uses ~~generates~~ said computerized ~~computer generated~~ model;

at least one portable computer which acts as a client to said server ~~computer or computers~~, said at least one portable computer being able to download, upload or store, ~~means for downloading and storing~~ at least a portion of said at least one site specific representation to or computer generated model from said server ~~computer or computers~~ to said portable computer for displaying said representation on said portable computer; and

~~a display associated with said portable computer for displaying said representation;~~

~~a means~~ at least one measurement device for measuring performance measurements within said physical environment, said at least one measurement device being associated with said at least one portable computer;

wherein performance measurements made with said measurement device are communicated to said server computer or computers and can be correlated with location information where said performance measurements are made and for inputting performance measurements into said portion of said computer generated model in said portable computer.

29. (Currently amended) The computerized system of claim 28 ~~further comprising~~ a means for uploading said performance measurements from said portable computer to said server wherein said measurement device is positioned inside or is

part of said at least one portable computer.

30. (Currently amended) The computerized system of claim ~~28~~ 29 wherein said ~~means for measuring is a measurement device~~ is connected to said portable computer.

31. (Currently amended) The computerized system of claim 28 ~~further comprising a means for downloading said~~ wherein said at least one portable computer can download or upload performance measurements, predictions, or equipment modifications to or from said server computer or computers to said portable computer.

32. (Currently amended) The computerized system of claim 28 ~~further comprising a means for uploading and downloading said performance measurements from~~ wherein said at least one portable computer can download or upload performance measurements, predictions or equipment modifications to or from another computer which is different from said server computer or computers.

33. (Currently amended) The computerized system of claim ~~28~~ 32 wherein said ~~means for measuring is a measurement device connected to said~~ at least one portable computer has a display.

34. (Currently amended) The computerized system of claim 28 wherein said server computer or computers or said at least one portable computer can be used to input further comprising:

- ~~—— a means for inputting changes to at least a portion of said~~ at least one site specific representation computer generated model on said portable computer which is downloaded from said server, said means for inputting being positioned on said at least one portable computer; and
- ~~—— a means for uploading said changes to said server.~~

35. (Currently amended) The computerized system of claim 28 further comprising:

~~a means for inputting changes to at least a portion of said computer generated model on said portable computer which is downloaded from said server, said means for inputting being positioned on said portable computer, and~~

a means for ~~outputting~~ updating predicted performance parameters for a communications network ~~of said communications network based on said inputted changes on said display of said personal computer.~~

36. (Original) The computerized system of claim 28 wherein said communications network includes wireless communication devices.

37. (Currently amended) The computerized system of claim 28 wherein said at least one portable computer is a hand-held computer.

38. (Currently amended) The computerized system of claim 28 wherein said at least one site specific representation is three dimensional.

39. (Currently amended) The computerized system of claim 38 wherein said at least one site specific representation is constructed from a series of two dimensional representations.

40. (Currently amended) The computerized system of claim 28 wherein said physical environment is a building and said ~~pictorial~~ at least one site specific representation includes at least one floor plan of said building.

41. (Currently amended) The computerized system of claim 40 wherein said at least one site specific representation includes a plurality of floor plans for a plurality of floors in said building, and wherein said at least one portable computer can be used for selecting ~~includes a means for selecting~~ specific floor plans of said plurality of floors for displaying on a ~~said~~ display.

42. (Currently amended) The computerized system of claim 28 wherein said physical environment is a campus of buildings and said at least one site specific representation includes at least one floor plan for one or more ~~each of a plurality~~

of buildings of in said campus, and wherein said at least one portable computer can be used for selecting ~~includes a means to select~~ a building within said campus of buildings and to display, on a display associated with either or both said at least one portable computer or said server computer or computers, said at least one floor plan for said building selected.

43. (Currently amended) The computerized system of claim 40 wherein said at least one site specific representation includes a plurality of floor plans for ~~for~~ a plurality of floors for said building ~~selected~~.

44. (Currently amended) The computerized system of claim 28 wherein said components are selected from the group consisting of base stations, base station controllers, amplifiers, attenuators, antennas, coaxial cabling, fiber optic cabling, connectors, splitters, repeaters, transducers, converters, couplers, leaky feeder cables, hubs, switches, routers, firewalls, power distribution lines, copper wiring, twisted pair cabling, and wireless access points.

45. (Currently amended) The computerized system of claim 28 wherein said computerized model represents an outdoor environment in two dimensions or three dimensions ~~physical environment is an outdoor area having three dimensional topology and said representation includes a representation of said three dimensional topology.~~

46. (Original) The computerized system of claim 28 further comprising a position-tracking device used to determine position within said physical environment.

47. (Original) The computerized system of claim 28 wherein said communication network components are maintained in a bill of materials.

48. (Currently amended) The computerized system of claim 28 wherein said at least one measurement device operates in an un-manned fashion further comprising:

~~_____ a means for updating predicted performance parameters for a communications network which is or may be configured said physical environment computed at said server computer or computers to said at least one portable computer a means for inputting changes to at least a portion of said computer generated model on said portable computer which is downloaded from said server, said means for inputting being positioned on said portable computer; and _____~~

~~_____ a means for uploading said changes to another portable computer that is different from said server.~~

49. (Currently amended) The computerized system of claim 28 further comprising at least one display at either said server computer or computers or said at least one portable computer:

~~_____ a means for inputting changes to at least a portion of said computer generated model on said portable computer which is downloaded from said server, said means for inputting being positioned on said portable computer;~~

~~_____ a means for uploading said changes to said server; and~~

~~_____ a means for displaying and storing said changes at said server.~~

50. (Currently amended) The computerized system of claim 34 wherein said changes that are input with said server computer or computers or said at least one portable computer modify a representation of a configuration of said communications network 28 further comprising:

~~_____ a means for inputting changes to at least a portion of said computer generated model on said portable computer which is downloaded from said server, said means for inputting being positioned on said portable computer;~~

~~_____ a means for uploading said changes to another portable computer that is different from said server; and~~

~~_____ a means for displaying and storing said changes at said another portable computer.~~

51. (Currently amended). A computerized system for designing, deploying, optimizing, modifying or maintaining a communications network, comprising:

a computer generated model representing ~~of~~ a physical environment in which said communications network is or will be deployed, said computer generated model either or both

(A) providing a three-dimensional representation of locations of components within said physical environment, or

(B) providing a representation of locations of components within said physical environment which is either two dimensional or three dimensional, and wherein said computer generated model is used ~~provides~~ for performance prediction of said communications network based on one or more factors selected from the group consisting of choice of components to be used within said physical environment, choice of parameters of said components, choice of locations for said components ~~with~~ within said physical environment, and orientation of said components at said locations;

a server computer or computers for running a computer program which uses ~~generates~~ said computer generated model;

at least one portable computer which acts as a client to said server, said at least one portable computer can download, upload or store data representing at least a portion of said computer generated model ~~from said server~~, and

at least one measurement device associated with said at least one portable computer for measuring performance measurements or metrics within said physical environment, wherein either or both said at least one measurement device or said at least one portable computer communicates said performance measurements or metrics to said server computer or computers to said portable computer for displaying either or both said three dimensional representation of (A) or said representation of (B); and

~~— a display associated with said portable computer for displaying either or both said three dimensional representation of (A) or said representation and said performance prediction results of (B).~~

52. (Currently amended) The computerized system of claim 51 further comprising a display associated with said server computer or computers or said at least one portable computer measurement device for measuring performance measurements or metrics within said physical environment or providing computation feedback

~~associated with said portable computer, and for inputting performance measurements or metrics into at least said portion of said computer generated model in said portable computer.~~

53. (Currently amended) The computerized system of claim 51 ~~52~~ wherein said measurement device is connected to, contained within, or interfaceable with said portable computer.

54. (Currently amended) The computerized system of claim 51 wherein said server computer or computers or said at least one portable computer can upload or download one or more of 52 further comprising an uploading device for uploading of said performance measurements or metrics, predictions of performance for a communications network which is or will be installed in said physical environment, or said data representing said at least a portion of said computer generated model to or from said at least one portable computer, to said server computer or computers, or another computer client.

55. (Currently amended) The computerized system of claim 51 wherein ~~54 further comprising a device for updating, modifying, logging, storing or archiving can be performed at said server computer or computers the performance measurements or metrics from said uploading device.~~

56. (Currently amended) The computerized system of claim 51 ~~54~~ wherein said server computer or computers or said at least one portable computer can be used to input changes to data representing at least a portion of said computer generated model at least one portable computer downloads at least an updated portion of said computer generated model from said server to said portable computer.

57. (Currently amended) The computerized system of claim 51 ~~54~~ wherein said server computer or computers or said at least one portable computer can communicate transmit either or both predicted or measured performance measurements or metrics.

58. (Currently amended) The computerized system of claim 51 wherein said at least one portable computer comprises an input device for inputting changes to at least a portion of said data representing said computer generated model.

59. (Currently amended) The computerized system of claim 58 further comprising an editor for making ~~editing~~ said changes.

60. (Currently amended) The computerized system of claim 51 ~~58~~ wherein said at least one portable computer performs or controls at least one of a) performance predictions, b) autonomous measurements, ~~performance analysis or comparisons of measured or predicted data~~, c) analysis of cost data of components or network infrastructure, ~~and determination of locations of physical objects or equipment~~, and d) tracking network equipment changes.

61. (Currently amended) The computerized system of claim 51 wherein said at least one portable computer can upload or download ~~58 further comprising an uploading device for uploading changes to~~ or from said server computer or computers ~~or servers~~ or to or from another portable computer.

62. (Currently amended) The computerized system of claim 51 ~~58~~ further comprising at least one of a display or storage device for displaying or storing, respectively, said changes at either said server computer or computers or said at least one portable computer or said another portable computer.

63. (Currently amended) The computerized system of claim 56 wherein efficient change tracking is employed ~~54 wherein said downloading and said uploading operate in real time or near real time~~.

64. (Currently amended) The computerized system of claim 51 ~~54~~ wherein communication of simulation or prediction or measurement data occurs through one of a docking cradle connection, a wireless connection, a wired connection, or ~~and~~ via electronic media.

65. (Currently amended) The computerized system of claim 51 ~~52~~ wherein said at least one portable computer includes a plurality of portable computers, and wherein either or both predicted or measured performance measurements or metrics may be communicated ~~transmitted~~ between said server computer or computers ~~or servers~~ and said plurality of portable computers, ~~and said computer generated model is updated based on said predicted or measurement performance measurements or metrics.~~

66. (Currently amended) The computerized system of claim 51 wherein said at least one portable computer provides data to said server computer or computers, and said server computer or computers processes provided data to provide a modified result ~~or portable computers are each a hand held device.~~

67. (Currently amended) The computerized system of claim 66 where said modified result is communicated to said at least one portable computer ~~51 wherein said communication network components are maintained in a bill of materials.~~

68. (Currently amended) The computerized system of claim 51 wherein said components include at least one communication network component, and wherein a cost of a communication network component of said at least one communication network component may be tracked, shared, revised, or substituted.

69. (Currently amended) The computerized system of claim 51 wherein said components include at least one communication network component, and wherein a performance attribute of a communication network component of said at least one communication network component may be tracked, shared, revised or substituted.

70. (Currently amended) The computerized system of claim 51 wherein a maintenance record in either or both said server computer or computers or said at least one portable computer may be tracked, shared, revised or substituted.

71. (Currently amended) The computerized system of claim 51 wherein said

components include at least one communication network component, and wherein a location or orientation of a communication network component of said at least one communication network component may be tracked, shared, revised or substituted.

72. (Currently amended) The computerized system of claim 51 wherein ~~a three dimensional representation is provided from said computer generated model, and~~ said three dimensional representation is represented as one or more a collection of two dimensional representations.

73. (Currently amended) The computerized system of claim 51 wherein said computer generated model provides a two dimensional or three dimensional representation based upon ~~includes~~ at least one floor plan of a building.

74. (Currently amended) The computerized system of claim 73 wherein said computer generated model provides two dimensional or three dimensional representations based upon ~~includes~~ a plurality of floor plans for one or more floors for one or more buildings.

75. (Currently amended) The computerized system of claim 74 wherein further comprising a selecting device which operates with said server computer or computers or servers or said at least one portable computer can be used to select ~~which selects~~ one or more floor plans or ~~and~~ one or more buildings for display, measurement or prediction operations.

76. (Previously presented) The computerized system of claim 51 wherein components represented in said computer generated model are selected from the group consisting of base stations, base station controllers, amplifiers, attenuators, antennas, coaxial cabling, fiber optic cabling, splitters, repeaters, transducers, converters, couplers, leaky feeder cables, hubs, switches, routers, firewalls, power distribution lines, copper wiring, twisted pair cabling and wireless access points.

77. (Previously presented) The computerized system of claim 51 wherein said

communications network includes wireless communication devices.

78. (Currently amended) The computerized system of claim 51 wherein said computer generated model represents an outdoor environment in two dimensions or three dimensions ~~physical environment includes an outdoor area having three dimensional topology, and said display displays said three dimensional topology.~~

79. (Currently amended) The computerized system of claim 51 further comprising a means ~~an identifier~~ for identifying a location of said at least one portable computer within said physical environment.

80. (Currently amended) The computerized system of claim 51 further comprising ~~79 wherein said identifier includes a position-tracking or locationing device for locating said at least one portable computer or measurement device.~~

81. (Currently amended) The computerized system of claim 51 wherein said server computer or computers or said at least one portable computer can be used to alter a layout of components ~~representation displayed on said display is three dimensional.~~

82. (Currently amended) The computerized system of claim 56 ~~81~~ wherein said changes that are input with said server computer or computers or said at least one portable computer modify a representation of a configuration of said communications network ~~representation is represented as a series of two dimensional representations.~~

83. (Currently amended) The computerized system of claim 51 wherein said at least one further comprising an un-manned measurement device makes performance for making measurements in said physical environment on an automated or un-manned basis and means for uploading said measurements to said server for updating said computer generated model.

84. (Previously presented) The computerized system of claim 51 wherein said

computer generated model ~~represents~~ includes at least one of objects in a building or their locations, communications component data and their location, building information or properties, radio propagation properties, bill of materials data, environmental data, cost data, and asset management data.

85. (Currently amended) A method for designing, deploying, optimizing, modifying or maintaining a communications network, comprising:

providing a computer generated model representing of a physical environment in which said communications network is or will be deployed, said computer generated model performs at least one of

(A) providing a three-dimensional representation of locations of components within said physical environment, or

(B) providing a representation of locations of components within said physical environment in either two dimensions or three dimensions, and wherein said computer generated model is used ~~provides~~ for performance prediction of said communications network based on one or more factors selected from the group consisting of choice of components to be used within said physical environment, choice of parameters of said components, choice of locations for said components ~~with~~ within said physical environment, and orientation of said components at said locations;

~~generating said computer generated model with a server computer or computers;~~

~~at least one portable computer which acts as a client to said server;~~

~~downloading, uploading or storing data representing at least a portion of said computer generated model between a from said server computer or computers and to at least one portable computer which acts as a client to said server; and~~

~~measuring, with at least one measurement device associated with said at least one portable computer, performance measurements or metrics; and~~

~~communicating, from either or both said at least one portable computer or said measurement device, said performance measurements or metrics to said server computer or computers.~~

~~displaying either or both said three dimensional representation of (A) or said representation and said performance prediction results of (B) on said at least~~

~~one portable computer.~~

86. (Currently amended) The method of claim 85 further comprising the step of displaying data that represents either or both said three dimensional representation of (A) or said representation or said performance prediction results of (B) wherein said step of displaying is performed on said server computer or computers.

87. (Currently amended) The method of claim 85 further comprising the step steps of

uploading performance predictions made with said at least one portable computer to said server computer or computers.

~~measuring performance measurements or metrics within said physical environment or providing computation feedback associated with said portable computer, and~~

~~inputting performance measurements or metrics into at least said portion of said computer generated model in said portable computer.~~

88. (Currently amended) The method of claim 85 ~~87~~ further comprising the step of connecting or interfacing a said at least one measurement device with said at least one portable computer.

89. (Currently amended) The method of claim 85 further comprising the step of downloading performance predictions made with said server computer or computers to said at least one ~~uploading said performance measurements or metrics from said portable computer to said server or another client.~~

90. (Currently amended) The method of claim 85-89 further comprising at least one of the steps of updating, modifying, logging, storing or archiving one or more of said computer generated model, said representation of said computer generated model, network component parameters, locations or orientations, and predicted or measured results ~~at said server the performance measurements or metrics.~~

91. (Currently amended) The method of claim 85 wherein said downloading,

uploading or storing step downloads ~~at least~~ an updated representation ~~portion~~ of said computer generated model from said server computer or computers to said at least one portable computer, or to another computer.

92. (Currently amended) The method of claim 85 ~~89~~ wherein either or both ~~said steps of uploading and downloading transmits either or both~~ predicted or measured performance measurements or metrics are communicated between to or from said server computer or computers or said at least one portable computer, or another computer.

93. (Currently amended) The method of claim 85 further comprising the step of inputting changes to at least a portion of said computer generated model ~~with said at least one portable computer~~.

94. (Currently amended) The method of claim 93 further comprising the step of editing or modifying said changes.

95. (Currently amended) The method of claim 85 ~~93~~ further comprising the step of performing, at said at least one portable computer, at least one of a) performance predictions, b) autonomous measurements, c) tracking network changes, and d) performance analysis or comparisons of measured or predicted data; analysis of cost data of components or network infrastructure, ~~and determination of locations of physical objects or equipment~~.

96. (Currently amended) The method of claim 85 wherein said downloading, uploading or storing step uploads an updated representation of said computer generated model from said at least one portable computer to said server computer or computers or to another computer ~~93 further comprising the step of uploading changes to said server or servers or to another portable computer~~.

97. (Currently amended) The method of claim 85 wherein said uploading, downloading or storing step stores ~~96 further comprising the step of displaying or storing said changes~~ at either said server computer or computers or said at least

one portable computer or at ~~said~~ another portable computer.

98. (Currently amended) The method of claim ~~85~~ 89 wherein ~~said steps of~~ downloading and uploading operate in real time or near real time.

99. (Previously presented) The method of claim 85 wherein communication of simulation or prediction or measurement data occurs through a docking cradle connection, a wireless connection, a wired connection, or via electronic media.

100. (Currently amended) The method of claim 85 wherein said at least one portable computer includes a plurality of portable computers, and wherein either one or more of simulated or ~~both~~ predicted or measured performance measurements or metrics, or network component information, may be communicated ~~transmitted~~ between said server computer or computers ~~or servers~~ and said plurality of portable computers, ~~and said computer generated model is updated based on said predicted or measurement performance measurements or metrics.~~

101. (Currently amended) The method of claim 85 ~~wherein said portable computer or portable computers are each a hand held device~~ further comprising the step of providing data from said at least one portable computer to said server computer or computers and said server computer or computers processes provided data to provide a modified result.

102. (Currently amended) The method of claim ~~101~~ where said modified result is communicated to said at least one portable computer ~~85 further comprising the step of maintaining said communication network components in a bill of materials.~~

103. (Currently amended) The method of claim 85 further comprising at least one of the steps ~~step~~ of tracking, sharing, revising, and substituting a cost of a communication network component in said computer generated model with either or both said server computer or computers or ~~and~~ said at least one portable

computer.

104. (Currently amended) The method of claim 85 further comprising at least one of the steps ~~step~~ of tracking, sharing, revising, and substituting a performance attribute of a communication network component in said computer generated model with either or both said server computer or computers or ~~and~~ said at least one portable computer.

105. (Currently amended) The method of claim 85 further comprising at least one of the steps ~~step~~ of tracking, sharing, revising, and substituting a location or orientation of a communication network component in said computer generated model with either or both said server computer or computers or ~~and~~ said at least one portable computer.

106. (Currently amended) The method of claim 85 further comprising at least one of the steps ~~step~~ of tracking, sharing, revising, and substituting a maintenance record in said computer generated model with either or both said server computer or computers or ~~and~~ said at least one portable computer.

107. (Currently amended) The method of claim 85 wherein said further comprising the step of representing a three dimensional representation of said physical environment is represented by one or more ~~from a collection of two dimensional representations.~~

108. (Currently amended) The method of claim 85 wherein said computer generated model provides a two dimensional or three dimensional representation based upon ~~includes~~ at least one floor plan of a building.

109. (Currently amended) The method of claim 108 wherein said computer generated model provides two dimensional or three dimensional representations based upon ~~includes~~ a plurality of floor plans for one or more floors for one or more buildings.

110. (Currently amended) The method of claim 109 further comprising the step of selecting one or more floor plans ~~of and~~ one or more buildings for displaying measurements or predictions ~~display, measurement or prediction operations with either or both said server computer or computers or said at least one portable computer.~~

111. (Previously presented) The method of claim 85 wherein components represented in said computer generated model are selected from the group consisting of base stations, base station controllers, amplifiers, attenuators, antennas, coaxial cabling, fiber optic cabling, splitters, repeaters, transducers, converters, couplers, leaky feeder cables, hubs, switches, routers, firewalls, power distribution lines, copper wiring, twisted pair cabling and wireless access points.

112. (Previously presented) The method of claim 85 wherein said communications network includes wireless communication devices.

113. (Currently amended) The method of claim 85 wherein said computer generated model represents an outdoor environment in two dimensions or three dimensions ~~physical environment includes an outdoor area having three dimensional topology, and further comprising the step of displaying said three dimensional topology.~~

114. (Currently amended) The method of claim 85 further comprising the step of identifying a location of said at least one portable computer or said measurement device ~~within said physical environment.~~

115. (Previously presented) The method of claim 114 wherein said identifying step is performed automatically.

116. (Previously presented) The method of claim 114 wherein said identifying step is performed on demand.

117. (Currently amended) The method of claim 114 wherein said identifying step

is performed using information obtained from a position-tracking or locationing device.

118. (Currently amended) The method of claim 85 further comprising the step of using said server computer or computers or said at least one portable computer to input changes to said computer generated model ~~wherein said representation displayed on said display is three dimensional.~~

119. (Currently amended) The method of claim 118 wherein said changes that are input in said inputting step with said server computer or computers or said at least one portable computer modify a representation of a configuration of said communications network ~~representation is represented as a series of two dimensional representations.~~

120. (Currently amended) The method of claim 85 further comprising the step ~~steps~~ of using an un-manned measurement device for making performance measurements in said physical environment, ~~and uploading said measurements to said server computer or computers for updating said computer generated model.~~

121. (Currently amended) The method of claim 85 further comprising the step of altering a layout of components using said server computer or computers or said at least one portable computer ~~wherein said computer generated model includes at least one of objects in a building or their locations, communications component data and their location, building information or properties, radio propagation properties, bill of materials data, environmental data, cost data, and asset management data.~~

122. (New) A computerized system for designing, deploying, optimizing, modifying or maintaining a communications network, comprising:

a site specific computer implemented model representing a physical environment in which a communications network is or may be deployed, said site specific computer implemented model providing a representation of one or more components or physical objects, said site specific computer implemented model is

used for performance prediction of a communications network based on one or more factors selected from the group consisting of choice of components to be used within said physical environment, choice of parameters of said components, choice of locations for said components within said physical environment, and orientation of said components at said locations;

a server computer or computers for running a computer program which uses said site specific computer implemented model;

at least one portable computer which acts as a client to said server computer or computers, said at least one portable computer can download, upload or store a representation of at least a portion of said site specific computer implemented model from said server computer or computers;

at least one measurement device for measuring one or more performance measurements or metrics within said physical environment, said measurement device being associated with said at least one portable computer, and

wherein said at least one portable computer communicates said one or more performance measurements or metrics measured by said measurement device to said server computer or computers.

123. (New). The computerized system of claim 122 wherein said server computer or computers updates said site specific computer implemented model of said physical environment to include said one or more performance measurements or metrics.

124. (New) The computerized system of claim 51 wherein said display can display one or more of location information, predictions, measurements, and at least a portion of said site specific representation.

125. (New) The computerized system of claim 5 wherein said at least one portable computer can be used to select specific floor plans from said plurality of floor plans.

126. (New) The computerized system of claim 34 wherein efficient change tracking is employed.

127. (New) The computerized system of claim 28 wherein said server computer or computers or said at least one portable computer can be used to input changes to said computerized model.

128. (New) The computerized system of claim 127 wherein said changes that are input with said server computer or computers or said at least one portable computer modify a representation of a configuration of said communications network.

129. (New) The computerized system of claim 127 wherein efficient change tracking is employed.

130. (New) A computerized system for designing, deploying, optimizing, modifying or maintaining a communications network, comprising:

- a computer implemented model which provides one or more representations of a physical environment in which a communications network is or may be deployed, said computer implemented model providing a representation representing locations of one or more components within said physical environment, said computer implemented model can be used for performance prediction of a communications network based on one or more factors selected from the group consisting of choice of components to be used within said physical environment, choice of parameters of said components, choice of locations for said components within said physical environment, and orientation of said components at said locations;

- a server computer or computers for running a computer program which uses said computer implemented model; and

- at least one portable computer which can download, upload or store one or more representations of said computer implemented model from said server computer or computers, said at least one portable computer can be used to modify, using said one or more representations, one or more factors used in said computer implemented model, and can determine updated performance predictions based on modifications to said one or more factors, and

- wherein said at least one portable computer can upload modifications or

updated performance predictions to said server computer or computers.

131. (New) The computerized system of claim 130 wherein said server computer or computers update said computer implemented model to include said modifications or updated performance predictions.

132. (New) The computerized system of claim 130 further comprising at least one measurement device for measuring performance metrics in said physical environment, said measurement device providing performance measurements or metrics to either or both said at least one portable computer or said server computer or computers.

133. (New) The computerized system of claim 132 wherein either or both said at least one measurement device or said at least one portable computer is operated without human intervention.

134. (New) The computerized system of claim 132 wherein either or both said at least one measurement device or said at least one portable computer is positioned at a fixed location, and wherein either or both said at least one measurement device or said at least one portable computer can be used to passively or autonomously report communication network performance to said server computer or computers, or one or more client computers, or one or more other computers.

135. (New) The computerized system of claim 132 further comprising a display for displaying predicted or simulated data or measurement data.

136 (New). The computerized system of claim 135 wherein said display presents markers or statistics directly on a building drawing which indicate differences between predicted or simulated data and actual measurement data.

137 (New). The computerized system of claim 132 wherein performance measurements are correlated to position information.

138 (New). The computerized system of claim 132 wherein one or more site specific data are communicated between a server computer or computers and said at least one portable computer or another computer, wherein said site specific data includes one or more of network information, measured data, and predicted data, and wherein said site specific data are capable of being processed and analyzed remotely, and of being updated so as to allow new, updated, performance predictions to be communicated between said server computer or computers and said at least one portable computer or another computer.

139 (New). The computerized system of claim 130 further comprising a display for displaying simulated or predicted data as one of a) a grid of data points, b) one or more contours identifying equal performance, and c) one or more points where a simulated user is tracked within a building.

140 (New). The computerized system of claim 130 further comprising a position-tracking or locationing system, and which displays one or more comparisons of measured position-location with predicted or simulated position-location at either said server computer or said one or more portable computers or other computers.

141. (New) A method for designing, deploying, optimizing, modifying or maintaining a communications network, comprising the steps of:

providing a computer implemented model representing a physical environment in which a communications network is or may be deployed, said computer implemented model providing a representation of locations of one or more components within said physical environment, said computer implemented model can be used for performance prediction of a communications network based on one or more factors selected from the group consisting of choice of components to be used within said physical environment, choice of parameters of said components, choice of locations for said components within said physical environment, and orientation of said components at said locations;

communicating between a server computer or computers and at least one portable computer, either

a) performance measurements made in said physical environment with a

measurement device that is associated with said at least one portable computer, or

b) updated performance predictions determined by either said server computer or computers or said at least one portable computer that are based on modifications to said one or more factors; and

updating one or more representations of said computer implemented model to include either said performance measurements or said updated performance predictions.

142 (New) The method of claim 141 wherein either or both a measurement device used for making said performance measurements or said at least one portable computer are operated without human intervention.

143. (New) The method of claim 141 wherein either or both a measurement device used for making said performance measurements or said at least one portable computer are positioned at a fixed location, and further comprising the step of using either or both said measurement device or said at least one portable computer to passively or autonomously report communication network performance to said server computer or computers, or one or more client computers, or one or more other computers.

144. (New) The method of claim 141 further comprising the step of displaying predicted or simulated data or measurement data.

145 (New). The method of claim 144 wherein said displaying step includes the step of presenting markers or statistics directly on a building drawing which indicate differences between predicted or simulated data and actual measurement data.

146 (New). The method of claim 141 further comprising the step of correlating said performance measurements with position information.

147 (New). The method of claim 141 wherein one or more site specific data are communicated between a server computer or computers and said at least one

portable computer or another computer, wherein said site specific data includes one or more of network information, measured data, and predicted data, and wherein said site specific data are capable of being processed and analyzed remotely, and of being updated so as to allow new, updated, performance predictions to be communicated between said server computer or computers and said at least one portable computer or another computer.

148 (New). The method of claim 141 further comprising the step of displaying simulated or predicted data as one of a grid of data points, one or more contours identifying equal performance, and one or more points where a simulated user is tracked within a building.

149 (New). The method of claim 141 further comprising the step of position-tracking movements of one or more users within said physical environment, and displaying said movements on a display.

150 (New). The computerized system of claim 122 wherein either or both said at least one measurement device or said at least one portable computer is operated without human intervention.

151. (New) The computerized system of claim 122 wherein either or both said at least one measurement device or said at least one portable computer is positioned at a fixed location, and wherein either or both said at least one measurement device or said at least one portable computer can be used to passively or autonomously report communication network performance to said server computer or computers, or one or more client computers, or one or more other computers.

152. (New) The computerized system of claim 122 further comprising a display for displaying predicted or simulated data or measurement data.

153 (New). The computerized system of claim 152 wherein said display presents markers or statistics directly on a building drawing which indicate differences

between predicted or simulated data and actual measurement data.

154 (New). The computerized system of claim 122 wherein performance measurements are correlated to position information.

155 (New). The computerized system of claim 122 wherein one or more site specific data are communicated between a server computer or computers and said at least one portable computer or another computer, wherein said site specific data includes one or more of network information, measured data, and predicted data, and wherein said site specific data are capable of being processed and analyzed remotely, and of being updated so as to allow new, updated, performance predictions to be communicated between said server computer or computers and said at least one portable computer or another computer.

156 (New). The computerized system of claim 122 further comprising a display for displaying simulated or predicted data as one of a) a grid of data points, b) one or more contours identifying equal performance, and c) one or more points where a simulated user is tracked within a building.

157 (New). The computerized system of claim 122 further comprising a position-tracking system which allows movements of one or more users within said physical environment to be tracked and displayed.

158 (New). The computerized system of claim 122 wherein either or both said at least one measurement device or said at least one portable computer is operated without human intervention.

159. (New) The computerized system of claim 51 wherein either or both said at least one measurement device or said at least one portable computer is positioned at a fixed location, and wherein either or both said at least one measurement device or said at least one portable computer can be used to passively or autonomously report communication network performance to said server computer or computers, or one or more client computers, or one or more other

computers.

160. (New) The computerized system of claim 51 further comprising a display for displaying predicted or simulated data or measurement data.

161 (New). The computerized system of claim 51 wherein said display presents markers or statistics directly on a building drawing which indicate differences between predicted or simulated data and actual measurement data.

162 (New). The computerized system of claim 51 wherein performance measurements are correlated to position information.

163 (New). The computerized system of claim 51 wherein one or more site specific data are communicated between a server computer or computers and said at least one portable computer or another computer, wherein said site specific data includes one or more of network information, measured data, and predicted data, and wherein said site specific data are capable of being processed and analyzed remotely, and of being updated so as to allow new, updated, performance predictions to be communicated between said server computer or computers and said at least one portable computer or another computer.

164 (New). The computerized system of claim 51 further comprising a display for displaying simulated or predicted data as one of a) a grid of data points, b) one or more contours identifying equal performance, and c) one or more points where a simulated user is tracked within a building.

165 (New). The computerized system of claim 51 further comprising a position-tracking system which allows movements of one or more users within said physical environment to be tracked and displayed.

166 (New). The computerized system of claim 28 wherein either or both said at least one measurement device or said at least one portable computer is operated without human intervention.

167. (New) The computerized system of claim 28 wherein either or both said at least one measurement device or said at least one portable computer is positioned at a fixed location, and wherein either or both said at least one measurement device or said at least one portable computer can be used to passively or autonomously report communication network performance to said server computer or computers, or one or more client computers, or one or more other computers.

168. (New) The computerized system of claim 28 further comprising a display for displaying predicted or simulated data or measurement data.

169 (New). The computerized system of claim 28 wherein said display presents markers or statistics directly on a building drawing which indicate differences between predicted or simulated data and actual measurement data.

170 (New). The computerized system of claim 28 wherein performance measurements are correlated to position information.

171 (New). The computerized system of claim 28 wherein one or more site specific data are communicated between a server computer or computers and said at least one portable computer or another computer, wherein said site specific data includes one or more of network information, measured data, and predicted data, and wherein said site specific data are capable of being processed and analyzed remotely, and of being updated so as to allow new, updated, performance predictions to be communicated between said server computer or computers and said at least one portable computer or another computer.

172 (New). The computerized system of claim 28 further comprising a display for displaying simulated or predicted data as one of a) a grid of data points, b) one or more contours identifying equal performance, and c) one or more points where a simulated user is tracked within a building.

173 (New). The computerized system of claim 28 further comprising a position-

tracking or locationing system, and which displays one or more comparisons of measured position-location with predicted or simulated position-location at either said server computer or said one or more portable computers or other computers.